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In late August 1984 NMEID released a report entitled "Radiological Assessment of the Populated Areas Southwest of the Homestake Mining Company Uranium Mill." This report provides a detailed assessment of the radiological risk to individuals living proximal to the subject facility. ~~There is a statement that lung cancer risk is significantly increased for those living southwest of the mill and its associated byproducts.~~

The report concludes that living in the communities poses a level of lifetime cancer risk from radiation exposure which is above the natural background for the area.

Comments on the report have been provided by EPA Region VI personnel 60RC, 6AW-P, 6AW-AT, 6AW-SE as well as informal comments by CDC, and ~~NIOSH~~ OSHA personnel were contacted but reserved judgement. These comments have been assembled into the following report.

The NMEID report was described variously as credible, well done, technically accurate, and as providing a reasonable assessment of risk. However, there are a number of uncertainties, many of which might be resolved with additional data.

The measured radon ^{Concentration} daughter in the indoor atmosphere contains three components, namely, the mill tailings, naturally occurring background, and the "internal sources". The "internal sources" might be more appropriately described as "anomalous" as they were not identified. Since it is impossible to measure each of these sources separately, the investigators measured concentrations in areas judged to be similar. This assumption is fundamental to the NMEID study, and may be subject to considerable error if inappropriate surrogate areas were chosen. However, using their results, there was approximately equal contribution from each of the sources: 33% from the mill tailings, 38% from background, and 29% from internal sources.

The risk assessment assumes that all 200 nearby residents are exposed to the maximum measured concentration (0.029 WL), and 0.08 - 0.69 premature deaths are calculated for an 8.6 year residence time. Since 2 out of 5 homes actually measured did not exceed 0.02 WL, this result seems too high by a factor of at least two. Further, ~~it is~~ not clear that samples were representative of the 80 affected homes.

The object of any remedial activity would be to reduce the atmospheric exposure to radon daughters. The CDC does not consider the described exposure as requiring immediate emergency actions. A number of options can achieve reduced exposure, such as removing the tailings, or covering them with soil or water. Use of water would likely exacerbate the ground water contamination in the area and is therefore not recommended.



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or removing radium - containing materials

of reducing exposure

If the origin of the "internal sources" is pinpointed, a remedial technology such as sealing walls ~~(other construction material)~~ may be feasible. Moving the affected residents would also accomplish the goal, but ~~this is not viewed by CDC as the primary option of choice.~~ However, this option may prove to be the most economical.

the CDC feels other remedial actions may also be effective

^{is} The legal authority to respond to the problem ^{vested in} rests with State and Federal Officials. The various avenues for response are presented in the following discussion:

attached memorandum from Jim Turner to Bill Hathaway

Superfund Authority

Remove EPA appears to have authority under Superfund to respond to the radionuclide problem. Valid response authority exists where there is a release or threatened release of a hazardous substance from a facility. CERCLA's definition of hazardous substance creates uncertainty about Superfund jurisdiction over mining wastes. Section 101 (14) (c) of CERCLA defines hazardous substance to include "any hazardous wastes having the characteristics identified under or listed pursuant to Section 3001 of the Solid Waste Disposal Act (RCRA) (but not including any waste the regulation of which under the Solid Waste Disposal Act has been suspended by Congress). " In the RCRA amendments of 1980, Congress suspended the regulation of "Solid waste from the extraction, beneficiation, and processing of ores and materials ..." [See Section 3001 (b)(3)(A) (ii)]

Accordingly, the RCRA mining waste exclusion only applies to "solid wastes from the extraction, beneficiation and processing of ores and materials..." " Under RCRA, solid waste does not include source, byproduct, or special nuclear material. Radionuclides are not mining waste subject to the RCRA exclusion because they meet the definition of byproduct material. Therefore, EPA should be able to respond to the release and recover its expended costs.

State Authority

New Mexico RCRA Laws

Remove This statute and the related regulations do not give New Mexico regulatory authority over the radionuclides. The New Mexico statute specifically excludes "source, special nuclear; or byproduct material as defined by the Atomic Energy Act of 1954", in its definition of hazardous wastes.

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Remove
New Mexico Air Quality Control Act

The only statutory authority that would allow a New Mexico response is §74-2-10, an emergency response section. This section could only be used if the emission is such that it meets the statutory definition of air pollution. Section 74-2-2 (B) excludes such emission that occur in nature. Consequently, if the concentration of radio-nuclides in the air surrounding the homes is within the naturally occurring concentration range for radionuclides, this statute will not provide New Mexico with response authority.

Remove
New Mexico Agreement with the Nuclear Regulatory Commission

On November 8, 1978, Congress enacted the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) to supplement the Atomic Energy Act of 1954. It established two programs to protect public health, safety, and the environment from uranium mill tailings. One was for certain designated sites which are now inactive, and the other applied to active sites. The program for active sites covers the final disposal of tailings and the control of effluents and emissions during and after milling operations. UMTRCA requires EPA to establish standards for this program [See 48 FR 45926].

UMTRCA added §274(b) to the Atomic Energy Act of 1954. §274(b) allows the NRC to enter agreements with states, to discontinue the regulatory authority of the NRC with respect to certain materials existing within that state. Byproducts are one type of material that can be regulated by a State pursuant to such an agreement. The NRC-New Mexico agreement did grant such authority to New Mexico.

The NRC has enumerated in 10 CFR 150 the authorities reserved to it in its relations with Agreement States under the provisions of UMTRCA and has specified conditions under which Agreement States may issue licenses and regulate material under UMTRCA. NRC's conditions include the specification that Agreement States must require compliance with EPA standards. The legislative history of UMTRCA shows that Congress intended EPA to set general standards and not ~~specify~~ specify any particular method of control.

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40 CFR 192.32 is the section in which EPA promulgated its standards applicable to the uranium byproduct materials during processing operations and prior to the end of the closure period. These standards do the following things:

1. There are standards for the protection of groundwater
2. The standards limit releases into the atmosphere after the closure period;
3. The standards require compliance with 40 CFR Part 190;
4. The standards require compliance with 40 CFR Part 440, Subpart C; and
5. The standards require the Agreement State, in conformity with Federal Radiation Protection Guidance, to make every effort to maintain radiation doses from radon emissions from surface impoundments of uranium byproduct materials as far below the Federal Radiation Protection Guides as is practicable at each licensed site.

New Mexico must require compliance with each of the five categories listed above. However, it does not appear any of the listed categories are applicable to the present situation. Numbers (1) and (4) set limitations on emissions into surface or groundwater. Number (4) also regulates "in situ" mining operations.

Number (2) would give New Mexico the required authority, but only after closure of the mill.

Number (3) specifically exempts radon and its daughters and Number (5) is limited to emissions from surface impoundments.

In addition to these rules established under UMTRCA, EPA is required to establish emission standards under the Clean Air Act. Although there are no final standards for air emissions applicable to mill tailings piles, a proposed rule for radionuclides has been published in the Federal Register. See [48 FR 15076].

The proposed rules for radionuclides were published as National Emission Standards for Hazardous Air Pollutants (NESHAPS). The proposed rule addressed all of the sources of emissions of radionuclides that EPA had identified. The proposed rule either provided standards for various source categories or proposed not to regulate them and provide reasons for that decision.

In the proposed NESHAPS for radionuclides, EPA did not propose additional standards for uranium mill tailings, because the Agency believed the EPA standards to be established under UMTRCA would provide the same degree of protection as required by section 112 of the Clean Air Act.

A final standard has not been promulgated, but EPA's Office of Radiation Programs is presently attempting to meet a court-ordered deadline to promulgate standards by October 23, 1984.

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EPA believes that the standards for the disposal of uranium tailings established in 40 CFR 192 provide protection of public health comparable to that which might be established under the Clean Air Act, because the consideration on which these standards are based are comparable to those the Agency uses in establishing standards under Section 112 of the Clean Air Act. However, the final determination will be made in Section 112 rulemaking on radionuclides.

Remove to here
↓
Finally, radiation protection guidance to Federal agencies for the conduct of their radiation protection activities was issued by the President on May 13, 1960 and published on May 18, 1960 [25 FR 4402] Federal Radiation Protection Guidance (FRPG) governs the regulation of radioactive materials by the NRC and Agreement States, and includes the following guidance: "... every effort should be made to encourage the maintenance of radiation doses as far below the FRPG as practicable... This guidance is currently known as the "as low as reasonably achievable" principle. It is well suited to minimizing radiation exposure under conditions that vary greatly from site to site.

In accordance with a 9/20/84 telephone conversation between Mr. Richard Perkins of NMEID and Jim Mullins, the options that the State has for resolution of the problem include the following:

- 1) EID approaches Homestake and requests that the company voluntarily move the affected population.
- 2) State initiates condemnation procedures (presumably through Health codes) and requires movement of the people.
- 3) NM Legislature appropriates funds to buy the land, and consequently moves the people.
- 4) Install air exchange units in the affected homes. This would reduce radon daughter exposure by admitting outside air which contains a lower concentration of radon. and sweeping out radon daughters.
- 5) Approach EPA and request aid through Superfund Emergency Action.

It should be noted that options (1) through (4) had only been given cursory study at the time of the telephone discussion. EPA is to determine if the site is eligible for S.F. emergency action, and provide telephone response to Mr. Perkins, or Mr. Drypolcher of NMEID.

Mr. Perkins stated that no clear consensus of opinion existed in the affected population. Rather, two vocal factions had arisen. One group believes that prompt attention to the situation is merited, while the other thinks that no action is appropriate.

Not so, except for case where radon is coming from indoor sources. Ventilation will keep radon daughter concentration from reaching equilibrium with radon core.

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Summation

and if a "release" as defined in CERCLA has occurred

A significantly increased risk of lung cancer ~~is~~ ^{may be} imposed on at least some residents of homes adjacent to the mill. Additional data is needed to clarify the size of the population at risk. Source specific remedial technology could well reduce the radiation exposure to affected residents and therefore resolve the problem. However, considerably more information is needed to properly define the sources, and consequently, the appropriate remediation. The most expedient method of reducing the exposure to residents is to evacuate them from their current ~~habitation~~ ^{residences}. The affected residents have expressed no clear preference for a remedial approach

The State has authority to respond when emissions are not as low as is reasonably achievable. The Federal Guidance, referred to above, set limits of 3 pCi/l for individual members of the public and 1 pCi/l for large numbers of people. If these limitations are considered as low as reasonably achievable, New Mexico may not have the authority to respond to the air emissions unless those levels are exceeded or until the mill closes.

* It should be noted that the Consent Decree now in effect between EPA and Homestake does not address uranium byproducts. The Consent Decree reserves other actions and defenses to the parties. Accordingly EPA's response probably would not have an ^{e/p} effect on this outstanding agreement. ~~Stofredson~~

~~Because EPA has not clearly defined its jurisdiction and policies in regards to situations like the present, Office of Regional Counsel advises that written correspondence with the State on this issue should not be undertaken at this time.~~

It appears from the attached memo (Tanner → Hathaway) that EPA and the State of N.M. have legal authority to respond to the problem as a general proposition. However, more factual information should be provided to support a S.F. response.

* ~~habitat makes it sound like we are dealing with rabbits or birds or something~~

- 1) Organize a report
showing options of pros & cons
- 2) Letter inform E.R. & CDC
≠ Emergency
- 3) Non Emergency standpoint
Report ≠ cause/effect
 - 1) does not establish S.F. parasite
 - 2) Phase II study and
Tech. comments
 - 3) questions to be answered
by report to establish S.F. parasite
- 4) a) cause/effect [none] / tailing
isolate sources
b) other in laundry list
c) etc
- 5) Mistake w/in our ltd. resources